

Multimodal lifestyle optimization before, during, and after treatment for non-small cell lung cancer

From pretreatment assessment to (p)rehabilitation for improving treatment tolerance

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Patients with non-small cell lung cancer (NSCLC):

Age ≥ 70 years, low aerobic fitness, malnutrition, and/or tobacco-related comorbidity are common
This increases the risk of complications and a decreased quality of life



Pretreatment risk assessment

- Outcomes of pretreatment physical, nutritional, and geriatric tests are associated with complications after treatment
- Many tests seem easy-to-use or are currently already used in the diagnostic process
- Consensus on the most clinically relevant cut-off values of physical, nutritional, and geriatric tests is lacking

Parameters associated with treatment outcomes

Exercise tests:

- Cardiopulmonary exercise test
- Incremental shuttle walk test
- Six-minute walk test
- Stair climb test



Patients who undergo surgery

Nutritional assessment:

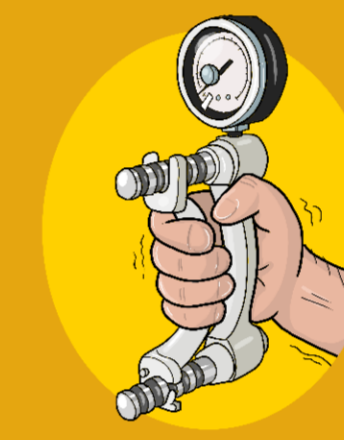
- Anthropometry
- Sarcopenia
- Blood biomarkers



Patients who undergo surgery

Physical performance parameters:

- WHO performance status
- Body mass index
- Fat-free mass
- Handgrip strength



Patients who undergo concurrent chemoradiotherapy

Physical and geriatric parameters:

- Short nutritional assessment
- Geriatric frailty index and G8
- Short physical performance battery
- Timed up-and-go test



Patients ≥ 70 years who undergo surgery or stereotactic radiotherapy

Lifestyle optimization

Prehabilitation before surgery

- Physical prehabilitation is a preventive approach that aims to prepare patients for lung cancer surgery
- Prehabilitation improves resilience, reduces the risk of complications, and accelerates recovery of physical function
- It remains unclear how the most effective exercise prehabilitation program should be designed regarding optimal dosage, type and timing



Rehabilitation during chemoradiotherapy

- Rehabilitation during treatment aims to 1) optimize patients' health and functionality while undergoing chemoradiotherapy and 2) improve treatment tolerance
- Rehabilitation improves resilience
- Rehabilitation was feasible if it was adapted to the patients' needs and preferences
- The intensity of exercises could be adjusted to moderate intensity according to the patients' abilities at the time



Development of a lifestyle program



Patients



Informal caregivers



Healthcare professionals

Main expectation: prehabilitation improves recovery

Main preference: physical exercise training in a group

Main barrier: not receiving proper information about a healthy lifestyle

Main facilitator: recommendation by physicians

Main expectation: physical exercise training in a group

Main preference: offered in the patient's living context

Main barrier: prehabilitation-induced delay of surgery

Main facilitator: participate together with their loved-ones

Main expectation: frail patients benefit the most

Main preference: case manager screens patients on risk factors

Main barrier: the short period between diagnosis and surgery

Main facilitator: interdisciplinary collaboration within and between primary and secondary healthcare